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ABSTRACT

A survey of the reference departments of public libraries in Arizona, Colorado, New Mexico, and Utah was conducted to determine whether CD-ROM products are being used in routine reference work. Previous literature on CD-ROM had primarily been concerned with the response to and acceptance of the technology by patrons. A stratified sample of public libraries containing at least 50,000 volumes was used to allow comparisons between different size libraries and their use of CD-ROMs. Of the 68 surveys sent out, 57 were returned. Of the libraries replying, 65 percent used CD-ROM products. A slight majority of these libraries, 58.8 percent, indicated that the reference staff used CD-ROMs routinely. However, use by patrons was found to be more important than use by staff when selecting a CD-ROM product. Six tables and two figures present study data. Four appendixes contain the questionnaire, its cover letter, and two lists of CD-ROM products. (Contains 14 references.) (SLD)

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# UTILIZATION OF CD-ROM REFERENCE PRODUCTS BY REFERENCE LIBRARIANS IN PUBLIC LIBRARIES IN ARIZONA, COLORADO, NEW MEXICO, AND UTAH

A Master's Research Paper submitted to the
Kent State University school of Library Science
in partial fulfillment of the requirements
for the degree Master of Library Science

by

Lori Titus

December, 1992

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UTILIZATION OF CD-ROM REFERENCE PRODUCTS BY REFERENCE LIBRARIANS IN PUBLIC LIBRARIES IN ARIZONA, COLORADO, NEW MEXICO, AND UTAH

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## INTRODUCTION

Technology is becoming an increasingly important part of today's public libraries. CD-ROM (compact disc-read only memory) is currently causing some controversy in the field of library science. CD-ROM technology uses pits and grooves to store information on small plastic discs. The stored information is retrieved by means of a laser light beam contained in a disc drive, connected to a computer, which reads the information in a way similar to a floppy disk drive. A single disc contains approximately the same amount of information as 200,000 typed, single-spaced pages (Salomon, 1988). Some librarians tout this technology as being the first step in creating a "library without walls," while others are more cautious about jumping on the bandwagon. While this technology will not replace traditional formats, it can be a valuable alternative source of information. The results of this study show what CD-ROM products are being used in public libraries and provides an insight into whether reference librarians see CD-ROM as a valuable source of information, or primarily for use by patrons.

The majority of articles concerning CD-ROM state that the primary use of this technology is in the reference department. In spite of these findings, very little is said about the use of CD-ROM by reference librarians themselves. The primary focus is on the patron as the end user. Therefore, the purpose of this study was to determine whether selection of CD-ROM is primarily based on the criterion of patron use, or if use by library staff is a major

factor in the decision to purchase a particular product. In addition, this study attempted to determine if reference librarians in public libraries are utilizing available CD-ROM reference materials to answer patron questions or whether they rely on more traditional "print" or online sources. These answers are important for public libraries trying to maintain a cost-effective position as a vital information resource in the community.

## LITERATURE REVIEW

Implementation of CD-ROM in all types of libraries is a big topic in the literature of the field. Subject coverage of these articles can be broken down into three areas: 1) the advantages and disadvantages of CD-ROM; 2) the end user; and 3) librarian attitudes.

### The Advantages and Disadvantages of CD-ROM

The enormous amount of literature on the subject of CD-ROM would lead one to believe that use of this technology by libraries is widespread. However, a 1988 study by Chen (1991) found that only 30% of the public libraries participating in the study owned any CD-ROM products. In addition, approximately 72% of these libraries had two or fewer products. Although this was a nationwide study, the sample size was fairly small, 1 in 20, and only 20% of the libraries surveyed returned the questionnaire, so generalization to the entire population is tenuous at best. One

must also consider that the data collected are four years old and, therefore, more public libraries may have subsequently implemented CD-ROM. Chen (1991) also found that while the number one use of CD-ROMs was for reference, few librarians have actually integrated CD-ROM products into the reference collection. However, the mere presence of CD-ROM near the reference desk "has a significant impact on reference services" (Ritch, 1990). With the presence of a CD-ROM product, reference librarians not only spend time answering questions about the use of the CD-ROM, but also performing technical services (e.g. changing disks, trouble shooting, and putting paper in the printer).

Before implementation of CD-ROM into a reference area, there are several considerations that should be made. There is very little variation in the literature concerning this issue. However, Reese's (1990) article on implementation of CD-ROM at Vanderbilt University states these considerations concisely. When considering the addition of CD-ROM to any library, she suggests that the following issues be considered: funding, single versus multiple user access to CD-ROM, staff and end user training, compatibility with print and online counterparts, and lastly, comparison of various databases to insure the product is the right one for your needs (Reese, 1990). If these suggestions are not considered, a library may end up spending thousands of dollars for an item that will get very little use. Chen (1991) found that the top three reasons for selection of CD-ROM products by libraries were: 1) subject coverage and usefulness, 2) price, and 3) the degree of

visibility in the marketplace the product had. While usefulness was a high priority, the study did not look at what was meant by usefulness. Was it to the patron, to the librarian, or both? In addition to issues of implementation, the advantages and disadvantages of the technology must be considered before a library commits itself to this medium.

Advantages of CD-ROM include the benefits of online searching without the high costs (Diamond, 1990). CD-ROMs can be purchased outright, leased or acquired on a subscription basis. In other words, there is a one time cost, whereas online costs are ongoing and harder to estimate. The specific cost of CD-ROM is much easier to budget for than the uncertain costs of online searching. High storage capacity available on these small discs is a space saving advantage important to many already overcrowded libraries. Another major advantage is multiple access points provided by CD-ROM that are not available with print sources. A print source is only as good as its index, but CD-ROM products frequently allow full text searching of the index which greatly increases the accessibility of the source. This feature makes the product much easier for the patron to search themselves. Bunge (1991) states that "CD-ROM allows patrons to find information that would be difficult or impossible to find in print sources."

According to Taylor (1989) CD-ROMs are changing the nature of reference work. Instead of finding the information for patrons, librarians are being called upon to instruct patrons in the use of the CD-ROM products. They are also expected to have the technical

expertise necessary to maintain the product. These new roles, particularly the latter, are seen as a disadvantage of the technology by many librarians. Other disadvantages include the time and cost needed to train staff and end users, space needed for the equipment, limited access (only one patron at a time), currency (the CD may not be updated as frequently as the print or online source), and the difficulty in browsing a CD-ROM product (Salomon, 1988). Diamond (1990) also notes that the high cost of the CD-ROM systems, printers, ink, paper and staff time to maintain the system can be a major burden on the reference staff. Librarians are reluctant to replace print sources available on CD-ROM, so they pay for the same information in two formats. Hogan (1990) feels that the only justification for taking up space with expensive equipment is that there is important information that can not be provided any other way.

The presence of CD-ROM has increased the awareness of library patrons for existing services. Many libraries have found that the use of CD-ROM products has had an impact on other areas of the library such as an increase in periodical circulation. Chen (1991) found that having optical products in the library is not only good for public relations, but the acquisition of these items increased the standing of the library by its patrons.

End User

The literature on the use of CD-ROM by the patron as the end user is extensive. According to Dowlin (1990), the public is more

receptive to new technology than the library staff. Taylor (1989) also found that "as more people use CD-ROM, more will want it." Proof of this has been provided by several studies which have shown that users would rather wait for CD-ROM than use a print source. Salomon (1988) looked at how librarians perceived user satisfaction with CD-ROM. Overwhelmingly the librarians felt users were highly satisfied with the product. However, it should be noted that there was no survey of users to back up these librarians' perceptions. Later Schultz and Salomon (1990) did a study involving college students. They found that a good predictor of end user acceptance was which format the student used the next time. Not surprisingly the study showed that once students had tried CD-ROM, using a print source became their second choice. Although more of the literature is interested in the patron as the user of CD-ROM, there is some mention of librarians' attitudes toward this source.

Librarian Attitudes

Schultz and Salomon (1990) found that the ways in which librarians search CD-ROM is quite different from the methods used by the patrons. Librarians tend to employ more sophisticated search strategies, similar to those used for online searching, while patrons are more comfortable with menu-driven searching. While CD-ROM has found overwhelming acceptance by patrons, librarians appear to consider it a supplemental means of research rather than a replacement for a print source (Truett, 1990). Librarians seem to be more hesitant to embrace CD-ROM technology

than patrons. When Tacoma Public Library implemented *Books In Print Plus (BIP+)*, it was met with skepticism by the librarians. This initial reaction was quickly replaced by enthusiasm as staff worked with it. It was also noted that this CD-ROM was implemented for staff and not patron usage (Hagan, 1987). Foulds and Foulds surveyed libraries in the United Kingdom and Ireland and found that "librarian satisfaction with the individual CD-ROM discs is high." However, they do not define satisfaction. Were they satisfied by the usage the CD-ROM received from patrons? Were they using the CD-ROMs themselves? Chen (1991) found that the primary users of CD-ROM in larger academic libraries were staff members.

## RESEARCH OBJECTIVES

Since most of these studies were conducted, the number of CD-ROM reference products has exploded. The greater availability of CD-ROM products raises many questions. What CD-ROM products are being used in public libraries? Are reference librarians utilizing the available CD-ROMs? Are CD-ROMs being integrated into the reference collection? When selecting CD-ROM products are reference librarians more interested in usage by patrons or reference staff? Are the selected CD-ROMs ones being taught in library science programs? This study looked specifically at the use and selection of CD-ROM products in the reference departments of public libraries in the states of Arizona, Colorado, New Mexico, and Utah.

## METHODOLOGY

A survey of the reference departments of public libraries in the selected states was conducted to determine utilization and selection criterion of CD-ROM products.

### Sample

The population consisted of public libraries in the states of Arizona, Colorado, New Mexico, and Utah. A list of the population was compiled from the *American Library Directory*. Three sample groups were formed from this population according to volumes held. Chen (1991) found that libraries with less than 100,000 volumes were less likely to have optical products. Based on this I eliminated libraries containing less than 50,000 volumes. However, I decided to include the 50-100,000 range because of the four year time period since Chen's study, and the decreased prices for CD-ROM products during that time. Therefore, the three sample groups in this study consisted of libraries having: 50,000-99,999 volumes, 100,000-499,999 volumes, and 500,000+ volumes.

### Questionnaire

The questionnaire contained a selective list of CD-ROM products listed in the text book used in the basic reference course at the Kent State University School of Library and Information Science, *Reference and Information Services: An Introduction*,

edited by Richard E. Bopp and Linda C. Smith. Some CD-ROM products were not included because they were very limited in scope, duplicated coverage, or were of an academic nature. These products were chosen deliberately as a checklist to see if libraries are using the reference materials being taught in library science programs. It also included usage categories for both patrons and staff. At the end of the checklist, space was provided for libraries to add 'other' CD-ROMs that are used in their libraries.

Procedures and design

A questionnaire designed to determine use and selection of CD-ROM products in public library reference departments was sent to the heads of the reference departments of the sample groups. A second mailing was not necessary because of the high return rate from the first mailing (83.8%).

A proportional stratified sample of the public libraries was not feasible due to the small number of very large libraries (500,000+ volumes). If an equal percentage of each strata were sampled, it would result in either too few very large libraries or too many smaller libraries being included in the sample. Therefore, any generalization of findings to the entire population would have been skewed toward the larger libraries. However, creating a stratified population will allow comparison of CD-ROM between these three groups.

Data analysis

Frequency distributions and measures of central tendency were used to determine: 1) which CD-ROM products are being used most frequently in the public libraries of the sample, 2) if patron or staff usage is the most frequent criterion for selection, and 3) to compare the impact volume size has on presence of CD-ROM.

The statistical package used to calculate frequency distributions and measures of central tendency was the PC version of Minitab, Release 8. Relevant tables and graphs were generated using WordPerfect 5.1 and QuatroPro.

## RESULTS

Of the 68 surveys sent out, 57 (83.8%) were returned. Table 1 shows the breakdown of the participating sample libraries by size and state.

| State | Number of Libraries | Percent of Sample | Size of Library by volumes held 50,000-99,999 | 100,000-499,999 | 500,000+ |
|---|---|---|---|---|---|
| Arizona | 17 | 29.82 | 8 | 6 | 3 |
| Colorado | 19 | 33.33 | 7 | 9 | 3 |
| New Mexico | 12 | 21.05 | 8 | 3 | 1 |
| Utah | 9 | 15.79 | 7 | 0 | 2 |
| All | 57 | 100.00 | 30 | 18 | 9 |

**Table 1** Composition of sample by state and size

Of those returning the survey, 64.9% have CD-ROM products in their library, while the remaining 35.1% do not. This division can be seen in Figure 1 for each state.

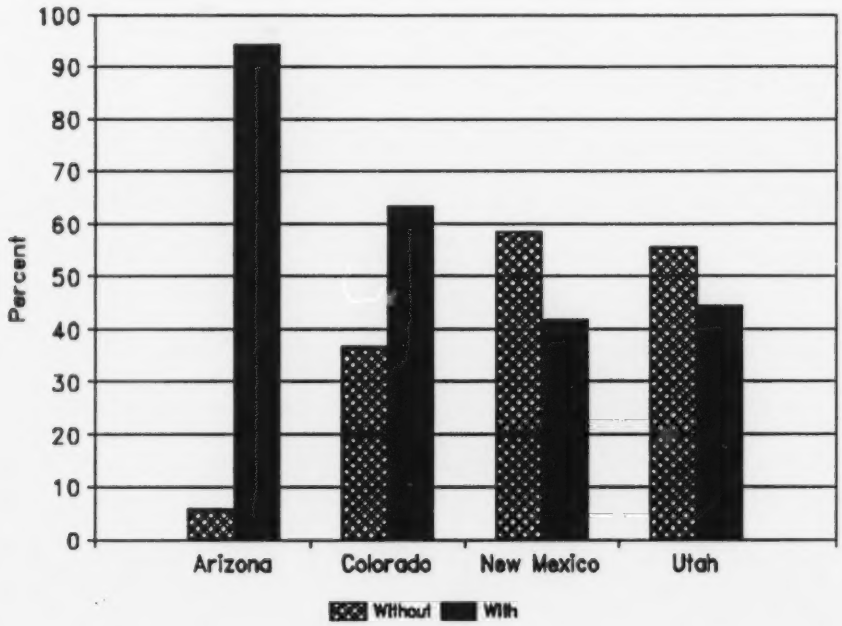


**Figure 1.** Percent Breakdown of CD-ROM by State

The survey indicates that Arizona has considerably more libraries using CD-ROM than the other three states. This was unexpected as Arizona is only marginally larger than Colorado by population, and therefore might have been expected to have similar characteristics. A possible explanation for the difference, is the Colorado Alliance of Research Libraries (CARL). CARL allows member libraries to use public access catalog terminals, rather than CD-ROM terminals to

provide access to other information sources. Of the libraries in Utah and New Mexico only 14 from each state, met the criteria to be included in the sample, and the majority of these contained less than 100,000 volumes. This may explain why more libraries in these two states have not implemented CD-ROM. It also supports Chen's (1991) assertion that libraries with less than 100,000 volumes do not have money to spend on CD-ROM products.

The survey contained a list of 27 CD-ROM reference products (see Appendix C) compiled from the standard textbook used in many basic reference courses (Bopp and Smith, 1991). This study found that ten of those products listed were not used in any of the libraries surveyed. Some of those CD-ROMs not being employed in the surveyed libraries are very limited in scope, such as *British National Bibliography*, *Guinness Disc of Records*, and *Congressional Masterfile 1 & 2*, which would require an extensive government documents collection. English language dictionaries in CD-ROM format are not a high priority for the libraries surveyed, as none listed implementation of such a source. Others like *Ulrich's Plus* and *Cumulative Book Index* are primarily selection tools, and in the case of *CBI*, if the library subscribes to *Books In Print Plus* in CD-ROM format, there would be little use in having both sources. It was surprising, however, to find that three CD-ROM products which have heavily used print counterparts in most public libraries are not being used in any of the libraries surveyed. They are *Biography Index*, *Gale GlobalAccess: Associations* (CD-ROM version of *The Encyclopedia of Associations*), and *Standard and Poor's*

*Register*. The reasoning for this may be that the CD-ROM products would limit the number of users for these items, or that the information is covered in another CD-ROM source. The remaining 17 were used in at least one library. The listing in Appendix C also shows the number and percent of the sample employing each product.

Of the checklist of CD-ROM reference products, the top five were, in order, *Books In Print Plus (BIP+)*, *Magazine Article Summaries (MAS)*, *NewsBank Electronic Index*, *Compton's MultiMedia Encyclopedia*, and *Microsoft Bookshelf CD-ROM Reference Library*. The number of libraries owning both *BIP+* and *Magazine Article Summaries* was significant in comparison to the other listed CD-ROMs. Table 2 shows the number and percent of libraries with CD-ROM having each of the top five products, a breakdown by state is also provided for each product. *BIP+* and *Magazine Article Summaries (MAS)* are clearly used more frequently than the other three products. The reason for this may be that each of these products meet basic needs of the two different user groups in a public library. *BIP+* would probably be used more frequently by staff than by patrons, while the reverse is probably true for *Magazine Article Summaries*.

As Table 2 shows, libraries in all of the states except New Mexico had at least four of the top five products. Arizona and Colorado had the largest percentage of libraries using *BIP+*, while New Mexico had the largest percentage of libraries employing *Magazine Article Summaries*. There was no significant difference of

use of products in Utah, four of the five products were used in 25% of the libraries surveyed.

| CD-ROM Product | Total Number of Libraries | % | State AZ # | AZ % | CO # | CO % | NM # | NM % | UT # | UT % |
|---|---|---|---|---|---|---|---|---|---|---|
| BIP+ | 19 | 51.4 | 11 | 68.8 | 6 | 50.0 | 1 | 20.0 | 1 | 25.0 |
| MAS | 12 | 32.4 | 4 | 25.0 | 4 | 33.3 | 3 | 60.0 | 1 | 25.0 |
| NewsBank | 6 | 16.2 | 2 | 12.5 | 4 | 33.3 | 0 | 00.0 | 0 | 00.0 |
| Compton's | 4 | 10.8 | 2 | 12.5 | 1 | 8.3 | 0 | 00.0 | 1 | 25.0 |
| Microsoft | 3 | 8.1 | 0 | 00.0 | 2 | 16.7 | 0 | 00.0 | 1 | 25.0 |

**Table 2.** Libraries Using Top 5 Listed CD-ROM Products

Daily usage of the top five listed CD-ROM products by staff and patrons is summarized in Table 3. None of these five products were unavailable for use by patrons as the table shows. However, *BIP+* was clearly used more times per day by library staff than by patrons. Of the libraries using this product, 21.1 % had staff usage of over 25 times per day. In contrast, *Magazine Article Summaries*, *NewsBank Electronic Index*, and *Compton's Multimedia Encyclopedia* were used more frequently by patrons than by staff. As the table indicates, patrons used them 25 times or more in at least 30% of the libraries, while none of these products was used more than 25 times per day by the staff. *Microsoft Bookshelf CD-ROM Reference Library* was used ten times or less by both patrons and staff.

| CD-ROM Product | Daily Patron Use | | | | Daily Staff Use | | | No Response |
|---|---|---|---|---|---|---|---|---|
| | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ | |
| BIP+ | --- | 63.2% | 36.8% | --- | 31.6% | 42.1% | 21.1% | 5.3% |
| MAS | --- | 16.7% | 25.0% | 58.3% | 50.0% | 33.3% | --- | 16.7% |
| NewsBank | --- | 16.7% | 50.0% | 33.3% | 33.3% | 50.0% | --- | 16.7% |
| Compton's | --- | --- | 50.0% | 50.0% | --- | 50.0% | --- | 50.0% |
| Microsoft | --- | 100% | --- | --- | 100% | --- | --- | --- |

**Table 3.** Daily Usage by Patrons and Staff of Top 5 Listed CD-ROMs

There were 51 different CD-ROM products listed as being used by at least one library in addition to the listing provided in the survey. Appendix D contains a list of these 'other' products as well as showing the number and percent of the sample employing each product. In this group, there also were clearly five products being used by more of the libraries. They were *Infotrac*, *Columbia Granger's Index to Poetry*, *Bibliofile*, *Facts on File*, and *PCSig Shareware*. The subject coverage of the other 46 CD-ROMs was diverse, providing no common trends which would allow prediction of the likelihood of a particular one being used. Table 4 provides a summary of the number and percent of the libraries overall in the sample having these products as well a breakdown by state.

| CD-ROM Product | Total Number of Libraries | % | State AZ # | AZ % | CO # | CO % | NM # | NM % | UT # | UT % |
|---|---|---|---|---|---|---|---|---|---|---|
| Infotrac | 20 | 64.5 | 9 | 64.3 | 7 | 70.0 | 1 | 25.0 | 3 | 100.0 |
| Granger's | 7 | 22.6 | 4 | 28.6 | 1 | 10.0 | 2 | 50.0 | 0 | 00.0 |
| Bibliofile | 4 | 12.9 | 1 | 7.1 | 2 | 20.0 | 1 | 25.0 | 0 | 00.0 |
| Facts on File | 4 | 12.9 | 2 | 14.3 | 1 | 10.0 | 0 | 00.0 | 1 | 33.3 |
| PCSIG | 4 | 12.9 | 3 | 21.4 | 1 | 10.0 | 0 | 00.0 | 0 | 00.0 |

**Table 4.** Libraries Using Top 5 Other CD-ROM Products

Of all the CD-ROMs used by libraries in this study, *Infotrac* was found in significantly more libraries (64.5%) than any other product. Why is *Infotrac* so popular? It provides bibliographic and full text databases in the areas of general interest, business and technology, and special interest. All of these subjects can be found on other CD-ROM products, however they may not all be produced by the same company and will not search the same way. *Infotrac* is convenient for the patrons because they do not have to figure out how to search a new product when going from subject to subject. It is interesting to note, that despite the wide spread usage of *Infotrac*, it is not included in Bopp and Smith (1991).

The widespread use of *Infotrac* brought up the question as to whether there was any correlation between a library using *Infotrac* and also using *MAS*, or do these products compete with one another? According to the libraries surveyed, six used both *Infotrac* and *MAS*, 17 used only *Infotrac*, and 9 used only *MAS*. These numbers suggest that these two products are competing for the same corner of the market.

Daily usage of the top five other CD-ROMs by both patrons and staff is shown in Table 5. Unlike the top five listed CD-ROMs all but *PCSig* were unavailable for use by patrons in some of the libraries surveyed. *Bibliofile* was not available for use by patrons in any of the libraries using this product. This was understandable as most libraries using it said it was located in their technical services department, not easily accessible to patrons. As can be seen in the table, *Infotrac* is used more frequently on a daily basis by patrons than by staff. The percentage of libraries with staff usage of 25 times or less daily was 85.7% for *Columbia Granger's Index to Poetry* compared with patron usage of 71.4% of 25 times or less for the same product.

| CD-ROM Product | Daily Patron Use | | | | Daily Staff Use | | | |
|---|---|---|---|---|---|---|---|---|
| | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ | No Response |
| Infotrac | 10.0% | 5.0% | 15.0% | 70.0% | 30.0% | 40.0% | 20.0% | 10.0% |
| Granger's | 28.6% | 57.1% | 14.3% | --- | 71.4% | 14.3% | --- | 14.3% |
| Bibliofile | 100% | --- | --- | --- | 25.0% | 25.0% | 50.0% | --- |
| Facts on File | 25.0% | 75.0% | --- | --- | --- | 100% | --- | --- |
| PCSIG | --- | 50.0% | 50.0% | --- | 100% | --- | --- | --- |

**Table 5.** Daily Usage by Patrons and Staff of Top Other CD-ROMs

One of the primary purposes of this study was to find out whether selection of CD-ROM products was based on the product being primarily used by the patron or primarily by the staff. The survey results indicate that usage by patrons is more important when selecting a CD-ROM product than use by the staff. While only 33 of the 37 libraries having CD-ROMs responded to question three, 28 of

those (84.9%) said use by the patrons was more important than staff use. Four (12.1%) cited use by the staff as the more important factor and one library (3%) said the product itself determined whether patron or staff use was more important.

When questioned on whether or not there was a time limit for use of CD-ROM products by patrons, 42.4% said no, while 57.6% did impose a time limit. Time limits ranged from 10 to 30 minutes, with a mean of 20 and standard deviation of 7.86.

The number of CD-ROM products an individual library had, ranged from 1 to 32, with a mean of 5.22 and standard deviation of 5.87. The majority of the libraries (29.7%) had only one product and having 32 was exceptional as can be seen in Table 6.

| Number of CD-ROMs | Number of Libraries | Percent of Libraries |
|---|---|---|
| 1 | 11 | 29.7 |
| 2 | 1 | 2.7 |
| 3 | 4 | 10.8 |
| 4 | 6 | 16.2 |
| 5 | 3 | 8.1 |
| 6 | 4 | 10.8 |
| 7 | 2 | 5.4 |
| 8 | 1 | 2.7 |
| 9 | 1 | 2.7 |
| 10 | 1 | 2.7 |
| 15 | 1 | 2.7 |
| 17 | 1 | 2.7 |
| 32 | 1 | 2.7 |

**Table 6.** Number of CD-ROMs Per Library

Size of the library by volumes held seems to have an impact on whether or not the library uses CD-ROM. As Figure 2 shows, 89% of the libraries with 500,000+ volumes employ CD-ROM, while only 47%

of the libraries with holdings of 50,000-99,000 volumes employ this technology. It also shows that there is less difference between those libraries with 100,000-499,999 and 500,000+ volumes. These results support Chen's (1991) assertion that libraries with less than 100,000 volumes are less likely to employ CD-ROM than larger libraries.

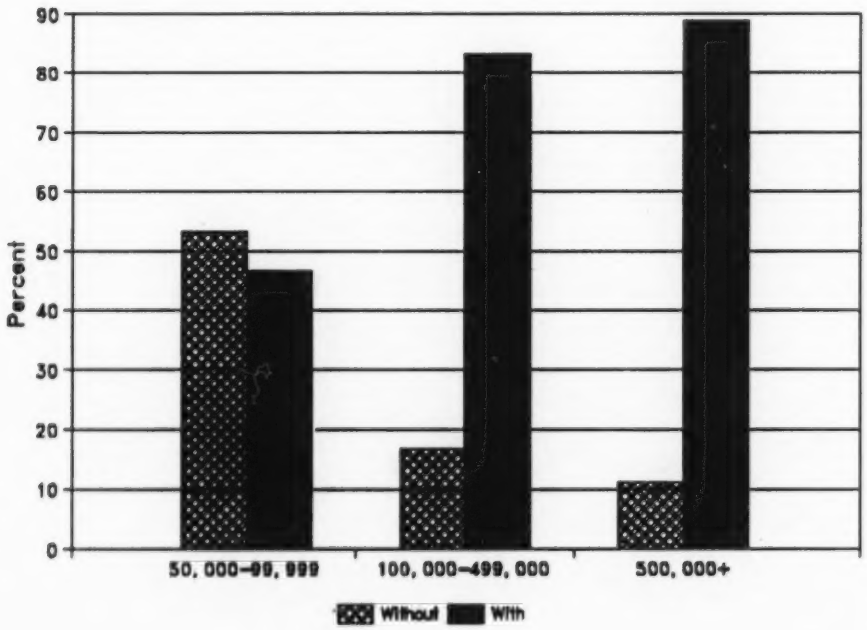


**Figure 2.** Impact of Size on Presence of CD-ROM

Twenty-three libraries provided a dollar amount for the question concerning their current year CD-ROM budget. This amount

ranged from $1,500 to $100,000 with a mean of $17,270 and a standard deviation of $22,682. A few of the libraries did not have a separate budget for CD-ROM, but included it as part of their book budget.

Opinions by the heads of the reference departments as to whether their reference staff was fully utilizing available CD-ROM was split approximately 60/40 with 58.8% feeling that the staff fully utilized available CD-ROMs to answer patron queries. For those supervisors that felt that their staff was utilizing available CD-ROM products, the reasons included: 1) increased accessibility and decreased time needed to answer a question, 2) staff was well trained and experienced using the products, 3) CD-ROMs were easy to use, 4) CD-ROMs were a central component of the reference services, and 5) one felt that by instructing patrons in the use of the CD-ROM stations the staff was utilizing the products. There were also common comments concerning the lack of utilization by staff: 1) products were new and unfamiliar, 2) lack of staff training, 3) lack of time for training or for staff to teach themselves, 4) the number of available CD-ROM stations limited staff use, 5) staff resistance to use of CD-ROM products, 6) products were hard to use, 7) lack of uniformity of searching between products, and 8) currency.

Only four of the twenty not currently using CD-ROM indicated that they had no plans for implementing CD-ROM. One of the library's felt CD-ROM products were too expensive, two listed a lack of space for the CD-ROM stations, and the last said

information is stored on the OPAC mainframe so that it is available to a large number of patrons simultaneously. However, the remaining 16 (80%) libraries, planned on implementing this technology at some time in the future. Responses as to when implementation would occur ranged from later this year (1992) to anywhere from 2 to 5 years from now.

## CONCLUSIONS

The variety of CD-ROM products being used by the participants of this study suggests that prediction of a specific product being used in a particular library is nearly impossible. While there were some products more likely to be used than others, such as *BIP+*, *Magazine Article Summaries*, *Infotrac*, and *Columbia Granger's Index to Poetry*, no one single product was used in all of the libraries in the sample. However, the number of libraries (65%) using CD-ROM products and those not currently using CD-ROM, but planning to implement CD-ROM (80%), indicates that this technology is becoming more increasingly accepted and integrated into the reference collection. In spite of this acceptance, the number of supervisors that felt their reference librarians were fully utilizing CD-ROM products was only slightly higher (58.8/41.2%) than those who did not. While a slight majority of reference librarians are using CD-ROM, this study found that use by patrons rather than staff, is of primary concern when selecting a particular CD-ROM product.

This selection criterion may have been a factor in the difference between the number of 'checklist' versus 'other' CD-ROM products being used. Of the 27 items on the checklist of CD-ROM products covered by a basic library science reference textbook, only 17 were being used in any of the libraries surveyed. This is in stark contrast to the 51 other CD-ROM products listed by these same libraries. This study indicates that the majority of CD-ROM reference products being used are not those covered in a basic textbook used in library science programs.

The small size of this study, does not allow generalization to public libraries nationwide. However, it has brought up some important issues which could provide a foundation for further studies concerning the use of CD-ROM by reference librarians.

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APPENDIX A

COVER LETTER

UTILIZATION OF CD-ROM REFERENCE PRODUCTS BY REFERENCE LIBRARIANS

May 25, 1992

'Name'
'Title'
'Library'
'Address'
'City'

Dear 'Name':

For my Master's research project, I am conducting a survey of public libraries in Arizona, Colorado, New Mexico, and Utah to determine which CD-ROM products are available and whether reference librarians are using these products to answer reference queries. I would appreciate your participation in my study, however you are under no obligation to do so.

The survey will take approximately 15 minutes to complete. Please return the completed survey to me by **June 30, 1992.** A self-addressed envelope has been provided for your convenience.

In order to track responses, a numbering system has been employed on the questionnaire. However, the identifying numbers are for my use only and will be kept strictly confidential.

If you have any questions concerning this study, please contact me or my faculty advisor:

| | |
|---|---|
| Lori L. Titus | Dr. Greg Byerly |
| Graduate Student | Associate Professor of Library Science |
| (513) 325-1831 | (216) 672-2782 |

This project has been approved by Kent State University. If you have questions about Kent State University's rules for research, please call Dr. Adriaan de Vries, telephone (216) 672-2070.

Sincerely,

Lori L. Titus
Graduate Student,
Kent State University

APPENDIX B

Utilization of CD-ROM Reference Products by Reference Librarians

Please place a check in all appropriate blanks.

1. Does your library currently use CD-ROM products? Yes___ No___
   (If no, please go to question 7)

2. Does your library currently use (owned or leased) any of the following CD-ROM products?
   (Mark all that apply, for each product you use please **circle** the number category that best estimates the **number of times used daily** by both patrons and library staff.)

| | Daily Patron Use | | | | Daily Staff Use | | |
|---|---|---|---|---|---|---|---|
| ___ Biography Index | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| ___ Books In Print Plus | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| ___ British National Bibliography | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| ___ CD-CoreWorks | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| ___ Compton's MultiMedia Encyclopedia | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| ___ Congressional Masterfile, 1 & 2 | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| ___ Cumulative Book Index | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| ___ Gale GlobalAccess: Associations | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| ___ General Periodicals Ondisc | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| ___ Guinness Disc of Records | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| ___ Information Finder | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| ___ Magazine Article Summaries | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| ___ Merriam-Webster Ninth New Collegiate Dictionary | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |

| | Daily Patron Use | | | | Daily Staff Use | | |
|---|---|---|---|---|---|---|---|
| ___ Microsoft Bookshelf CD-ROM Reference Library | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| ___ Million Dollar Disc | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| ___ Monthly Catalog of U.S. Government Publications | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| ___ New Electronic Encyclopedia | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| ___ NewsBank Electronic Index | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| ___ Newspaper Abstracts Ondisc | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| ___ Oxford English Dictionary | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| ___ Periodical Abstracts Ondisc | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| ___ Physician's Desk Reference | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| ___ Reader's Guide to Periodical Literature | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| ___ SciTech Reference Plus | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| ___ Standard & Poor's Register | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| ___ Statistical Masterfile | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| ___ Ulrich's Plus | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| Other: | | | | | | | |
| _____ | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| _____ | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| _____ | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| _____ | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |
| _____ | N/A | 0-10 | 11-25 | 25+ | 0-10 | 11-25 | 25+ |

3. When selecting CD-ROM products for your collection, which is more important? (Please circle only one letter.)

   a. The product will be used primarily by patrons.

   b. The product will be used primarily by staff.

4. Is there a time limit for use of CD-ROM products by patrons? Yes___ No___

   If yes, what is the time limit? _____

5. What is your current year budget for CD-ROM products? _____

6. In your opinion, do you feel that the reference staff is fully utilizing the CD-ROMs available in your library to answer patron questions? Yes___ No___

   Why or why not? _____

   _____

   _____

   _____

7. If your library does not currently use CD-ROM products are you considering implementing them? Yes___ No___

   If yes, when? _____

   If no, why not? _____

   _____

   _____

   _____

Please return this questionnaire by **June 30, 1992**.
(Lori Titus, 817 N. Burnett Rd., Springfield, OH 45503)

THANK YOU very much for your time and cooperation!

APPENDIX C

| CD-ROM Product | Number of Libraries | Percent |
|---|---|---|
| Biography Index | - | ---- |
| Books In Print Plus | 19 | 51.4 |
| British National Bibliography | - | ---- |
| CD-Coreworks | 1 | 2.7 |
| Compton's MultiMedia Encyclopedia | 4 | 10.8 |
| Congressional Masterfile, 1 & 2 | - | ---- |
| Cumulative Book Index | - | ---- |
| Gale GlobalAccess: Associations | - | ---- |
| General Periodicals Ondisc | 1 | 2.7 |
| Guinness Disc of Records | - | ---- |
| Information Finder | 2 | 5.4 |
| Magazine Article Summaries | 12 | 32.4 |
| Merriam-Webster 9th New Collegiate Dictionary | - | ---- |
| Microsoft Bookshelf CD-ROM Reference Library | 3 | 8.1 |
| Million Dollar Disc | 1 | 2.7 |
| Monthly Catalog of U.S. Government Publications | 1 | 2.7 |
| New Electronic Encyclopedia | 2 | 5.4 |
| NewsBank Electronic Index | 6 | 16.2 |
| Newspaper Abstracts Ondisc | 1 | 2.7 |
| Oxford English Dictionary | - | ---- |
| Periodical Abstracts Ondisc | 1 | 2.7 |
| Physician's Desk Reference | 1 | 2.7 |
| Reader's Guide to Periodical Literature | 1 | 2.7 |
| SciTech Reference Plus | 1 | 2.7 |
| Standard & Poor's Register | - | ---- |
| Statistical Masterfile | 2 | 5.4 |
| Ulrich's Plus | - | ---- |

APPENDIX D

| CD-ROM Product | Number of Libraries | Percent |
|---|---|---|
| ABI/Inform | 2 | 6.5 |
| Academic Abstracts | 1 | 3.2 |
| American Business Directory | 2 | 6.5 |
| Arizona Newspapers Ondisc | 1 | 3.2 |
| Autographics Government Documents Index | 1 | 3.2 |
| Republic | 1 | 3.2 |
| Baker & Taylor B&T+ | 1 | 3.2 |
| Bibliofile | 4 | 12.9 |
| Books Out of Print | 1 | 3.2 |
| Business NewsBank | 1 | 3.2 |
| CASSIS | 1 | 3.2 |
| CD Union Catalog | 1 | 3.2 |
| Columbia Granger's Index to Poetry | 7 | 22.6 |
| Compact Disclosure | 2 | 6.5 |
| Compustat | 1 | 3.2 |
| Constitution Papers | 1 | 3.2 |
| Delorme Street Atlas of U.S. | 1 | 3.2 |
| Disclit | 1 | 3.2 |
| Dun's Business Locater | 1 | 3.2 |
| Facts on File | 4 | 12.9 |
| GPO CD-ROMs | 6 | 19.4 |
| American Housing Survey | | |
| Agricultural Special Publications | | |
| CDP File | | |
| Census of Agriculture | | |
| Census of Population & Housing | | |
| County Business Patterns | | |
| County & City Data Book | | |
| DLA | | |
| Geology of Nevada | | |
| Hazardous Materials Inf System | | |
| High School & Beyond | | |
| National Trade Data Book | | |
| 1987 Economic Census | | |
| 1990 Census-STFIA | | |
| NPSAS | | |
| NURE | | |
| OSHA | | |
| Regional Economic Inf System | | |
| U.S. Exports of Merchandise | | |
| U.S. Imports of Merchandise | | |
| Grolier Electronic Encyclopedia | 2 | 6.4 |
| Humanities Index | 1 | 3.2 |

| CD-ROM Product | Number of Libraries | Percent |
|---|---|---|
| Infotrac<br>Business & Company ProFile<br>Business Periodical Index<br>General BusinessFile<br>Government Publications Index<br>Health Index Plus<br>Health Reference Center<br>Magazine Index Plus<br>National Newspaper Index | 20 | 64.5 |
| Languages of the World | 1 | 3.2 |
| Library of the Future | 1 | 3.2 |
| Mammals | 1 | 3.2 |
| Marcive-Monthly Catalog | 1 | 3.2 |
| Martindale-Hubbell Law Directory | 1 | 3.2 |
| McGraw-Hill Concise Encyclopedia of Science Technology | 1 | 3.2 |
| McGraw-Hill Dictionary of Scientific and Technical Terms | 1 | 3.2 |
| Microsoft Small Business Consultant | 1 | 3.2 |
| Mitchell-on-Demand | 1 | 3.2 |
| New York Times | 1 | 3.2 |
| New Mexico Union List of Serials | 1 | 3.2 |
| PCSig Shareware | 4 | 12.9 |
| PhoneDisc | 3 | 9.7 |
| PhonoLog | 1 | 3.2 |
| Reference Library | 1 | 3.2 |
| Resource One | 1 | 3.2 |
| SIRS | 1 | 3.2 |
| Software Toolworks Illustrated Encyclopedia | 1 | 3.2 |
| Spectrum Collage Clip Art | 1 | 3.2 |
| Telephone Books-WP & YP | 2 | 6.5 |
| Time Almanac | 1 | 3.2 |
| U.S. Atlas | 2 | 6.5 |
| U.S. History on CD-ROM | 1 | 3.2 |
| UMI ProQuest | 1 | 3.2 |
| USA Factbook | 1 | 3.2 |
| Wall Street Journal | 1 | 3.2 |
| World Atlas | 2 | 6.5 |